

CLAIMS

1. A document data display device comprising:
 - a receiving unit (102) receiving, from another device, compressed document
5 data that includes at least one of one or more lossless compressed text portion(s) and
one or more lossless or lossy compressed image portion(s), and further includes layout
information for said text portion(s) and/or said image portion(s);
 - an expansion unit (105, 106) expanding at least one of said compressed text and
image portions included in said compressed document data received by said receiving
10 unit (102); and
 - a display unit (108, 109) displaying the document data expanded by said
expansion unit (105, 106) in accordance with said layout information.
2. The document data display device according to claim 1, further comprising
15 a display scaling factor changing unit (101, 108) changing a display scaling factor for
said compressed document data.
3. The document data display device according to claim 1, further comprising
a display region changing unit (101, 108) changing a display region of said compressed
20 document data.
4. The document data display device according to claim 3, wherein said
display region changing unit (101, 108) determines a position to which said display
region is changed based on said layout information.
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5. The document data display device according to claim 1, further comprising:
 - a text selection unit (103) selecting at least one portion of said text portion
included in said document data; and
 - a storage unit (104) storing said selected text portion.

6. The document data display device according to claim 5, wherein said storage unit (104) stores, in addition to said selected text portion, layout information for said selected text portion.

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7. The document data display device according to claim 5, further comprising an editing unit (101, 108) editing document data using said text portion stored in said storage unit (104).

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8. The document data display device according to any one of claims 1 to 7, further comprising:

a text editing unit (101, 108) editing said text portion included in said document data;

15 an editing position specifying unit (103) specifying a position at which said editing is performed; and

a document data storage unit (104) storing said document data on which said editing has been performed.

20 9. The document data display device according to claim 8, further comprising a compression unit (205, 206) compressing said edited document data into compressed document data that includes at least one of one or more lossless compressed text portion(s) and one or more lossless or lossy compressed image portion(s) and further includes layout information for said text portion(s) and/or said image portion(s),

25 wherein said document data storage unit (104) stores said compressed document data.

10. The document data display device according to claim 8 or 9, further comprising a sending unit (102) sending, to other equipment, said received compressed document data or said document data stored in said document data storage unit (104).

11. The document data display device according to claim 10, further comprising:

5 a destination equipment capability acquisition unit (101, 102) acquiring a capability of destination equipment; and

a converted data creation unit (205, 206) creating converted data by converting, depending on said capability of said destination equipment, said received compressed document data or said document data stored in said document data storage unit (104), wherein said sending unit (102) sends said converted data to said destination
10 equipment.

12. The document data display device according to any one of claims 1 to 11, wherein said receiving unit (102) receives document data that includes at least one of one or more text portion(s) and one or more image portion(s) and further includes
15 layout information for said text portion(s) and/or said image portion(s),

further comprising a compressed data creation unit (205, 206, 207) converting said received document data, depending on a capability of equipment, to compressed document data that indicates at least one of one or more lossless compressed text portion(s) and one or more lossless or lossy compressed image portion(s) and further
20 includes layout information for said text portion(s) and/or said image portion(s).

13. The document data display device according to claim 1, wherein, depending on said layout information, said display unit (108, 109) displays document data using substitute text or a substitute image for said text portion or said image
25 portion that has not been expanded by said expansion unit (105, 106).

14. A document data display device comprising:

a receiving unit (102) receiving, from another device, document data that includes at least one of a text portion, a graphics portion and an image portion and

further includes layout information therefor; and

a display unit (108, 109) displaying said document data in accordance with said layout information.

5 15. The document data display device according to claim 14, further comprising a display scaling factor determination unit (101) determining a display scaling factor for said document data based on a character size that allows display and on character size information included in said document data.

10 16. A document data display device comprising:
a document data combining unit (101) combining a plurality of divided document data segments into one original document data set; and
a display unit (108, 109) displaying said divided document data segments as the one document data set.

15 17. A cell phone device including the document data display device according to any one of claims 1 to 16.

20 18. A method of displaying document data, comprising the steps of:
receiving (S201), from another device, compressed document data that includes at least one of one or more lossless compressed text portion(s) and one or more lossless or lossy compressed image portion(s) and further includes layout information for said text portion(s) and/or said image portion(s);
expanding (S205, S207) at least one of said compressed text and image portions
25 included in said compressed document data; and
displaying (S211) the document data expanded at said steps (S205, S207) in accordance with said layout information.

19. A program product for causing a computer to execute a data display

method comprising the steps of:

receiving (S201), from another device, compressed document data that includes at least one of one or more lossless compressed text portion(s) and one or more lossless or lossy compressed image portion(s) and further includes layout information for said text portion(s) and/or said image portion(s);

expanding (S205, S207) at least one of said compressed text and image portions included in said compressed document data; and

displaying (S211) the document data expanded at said steps (S205, S207) in accordance with said layout information.

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20. A document data output device, comprising:

an output unit (108, 109) outputting document data, said document data including area data information regarding at least one of a character area, a graphics area and an image area and further including layout information for said area; and

15 an output control unit (101) controlling output of said document data at said output unit (108, 109) based on said area data information and said layout information included in said document data, and on attribute information about said output unit (108, 109).

20 21. The document data output device according to claim 20, wherein said output control unit (101) further includes a scaling factor changing unit (101, 108) deciding and changing an output scaling factor for said document data at said output unit (108, 109) based on said area data information and said layout information included in said document data and on said attribute information.

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22. The document data output device according to claim 21, wherein said output control unit (101) controls said output unit to output an area depending on said area data information included in said document data to be replaced by a graphic or an image based on said output scaling factor determined by said scaling factor changing

unit (101, 108), said document data and said attribute information.

23. The document data output device according to any one of claims 20 to 22,
wherein said output control unit (101) further includes an output region changing unit
5 (101, 108) deciding and changing an output region for said document data at said
output unit (108, 109) based on said layout information.

24. The document data output device according to any one of claims 20 to 23,
wherein said output control unit (101) controls said output unit to output an area
10 depending on said area data information included in said document data replaced by a
graphic or an image to be output, using said layout information.

25. The document data output device according to claim 20, wherein said
output control unit (101) further includes a character size determination unit (101)
15 determining a character size for output at said output unit (108, 109) from among a
plurality of available character sizes included in said attribute information in
accordance with a character size of a character included in said character area, when
said output unit (108, 109) outputs the document data including said area data
information regarding said character area.

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26. The document data output device according to claim 20, wherein said
layout information includes information regarding a character size and position of a
character included in said character area, and

said output control unit (101) further includes a character size determination
25 unit (101) calculating an output scaling factor for said document data at said output unit
(108, 109) based on said area data information and said layout information included in
said document data and on said attribute information to determine a character size and
position for output at said output unit (108, 109) based on said calculated output scaling
factor.

27. The document data output device according to claim 25 or 26, wherein said character size determination unit (101) determines, as a character size for output at said output unit (108, 109), a character size smaller than a character size of a character included in said character area or a character size determined from said calculated output scaling factor.

28. The document data output device according to claim 20, wherein said layout information includes information regarding a character size and position of a character included in said character area, and

said output control unit (101) calculates an output scaling factor for said document data at said output unit (108, 109) based on a character size of said layout information and an available character size included in said attribute information to control said output unit to output said character at a position included in said layout information in an available character size corresponding to said calculated output scaling factor.

29. The document data output device according to claim 20, further comprising a character generation unit (101) generating a character in an arbitrary character size,

wherein said output control unit (101) controls said output unit to output the character in said arbitrary size generated by said character generation unit (101) in accordance with at least a character size of a character included in said character area and, as necessary, an output scaling factor for said document data at said output unit (108, 109) if document data is to be output including area data information regarding said character area at said output unit (108, 109).

30. The document data output device according to claim 20, further comprising:

a character generation unit (101) generating a character in an arbitrary character size; and

a used character determination unit (101) determining a character to be output at said output unit (108, 109) from among said character in said arbitrary character size
5 generated by said character generation unit (101) and an available character included in said attribute information in accordance with a character code or a character size.

31. A method of outputting document data at a document data output device, comprising the steps of:

10 storing (S201) document data in a storage unit of said document data output device, the document data including at least one of a character area, a graphics area and an image area and further including data of said area and layout information about said area;

outputting (S211) the document data at an output unit of said document data
15 output device; and

controlling (S209) output of said document data at said output unit based on at least one attribute information set stored in an attribute information storage unit of said document data output device storing one or more attribute information set(s) about said output unit, and on said document data stored in said storage unit.

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32. A program product causing a computer to execute a method of outputting document data, the document data including at least one of a character area, a graphics area and an image area, and further including data of said area and layout information for said area, the method comprising the steps of:

25 storing (S211) said document data in a storage unit of a document data output device;

outputting (S211) the document data at an output of said document data output device; and

controlling (S209) output of said document data at said output unit based on at

least one attribute information set stored in an attribute information storage unit of the document data output device storing one or more attribute information sets about said output unit, and on said document data stored in said storage unit.

5 33. A document data printing device, comprising:

 a request-to-send unit (101, 102) requesting document data to be sent from other equipment:

 a receiving unit (102) receiving, from another device, document data including at least one of a text portion, a graphics portion and an image portion and further

10 including layout information therefor;

 a display unit (108, 109) displaying said document data in accordance with said layout information; and

 a printing unit (108, 109) printing said document data.

15 34. The document data printing device according to claim 33, wherein said request-to-send unit (101, 102) requests document data to be used in printing at said printing unit (108, 109) apart from the document data displayed at said display unit (108, 109).

20 35. The document data printing device according to claim 33, further comprising:

 a document list acquisition unit (101, 102) acquiring, from said other equipment, a list for document data that can be transmitted by said other equipment; and

 a document selection unit (103) selecting document data requested by said
25 request-to-send unit (101, 102) from said list of document data.

 36. The document data printing device according to claim 33, further comprising a storage unit (104) storing said received document data,

 wherein said display unit (108, 109) displays the document data stored in said

storage unit (104).